Current Affairs

Dr. Carl Wagner to Receive First Palladium Medal Award

The Board of Directors announces that the First Palladium Medal Award goes to Dr. Carl Wagner, Visiting Professor of Metallurgy at Massachusetts Institute of Technology. The Palladium Medal was established by the Corrosion Division during the past year for outstanding contributions to corrosion and to fundamental electrochemistry. A description of the Medal was published in the July issue of the JOURNAL.

Dr. Wagner is recognized internationally for his outstanding contributions to the theory of oxidation and tarnish of metals. He showed, through papers first appearing in the early 1930's, that oxidation of a metal is not a direct chemical reaction as was once supposed. The mechanism, instead, can be interpreted by electrochemical processes. For instance, positively charged metal ions and electrons may diffuse outward through the oxide to unite with oxygen at the oxide-gas interface. By measurements of transference numbers, conductivities of reaction-product layers and free energies of reaction, Dr. Wagner was able to calculate the oxidation rates for copper and the tarnish rates for silver which were in very close agreement with observed data. His theory was probably the most important advance in corrosion science since the proposal of the electrochemical theory of corrosion in aqueous media.

Dr. Wagner was born in Leipzig, Germany, where his father was associate professor of chemistry. He obtained his Ph.D. degree from the University of Leipzig in 1924 and had the privilege of studying under the well-known electrochemist Professor Max LeBlanc. The next three years were spent at the University of Munich, followed by an appointment as research fellow under Professor Max Bodenstein at the University of Berlin. From 1928 to 1933, he was instructor in physical chemistry at the University of Jena, followed by a semester as deputy professor of physical chemistry at the University of Hamburg. In 1934, Dr. Wagner was called to the Polytechnic Institute of Darmstadt where he remained the next ten years, advancing from associate to full professor of physical chemistry. During this time, he also served as co editor of the *Zeitschrift für physikalische Chemie*.

DR. CARL WAGNER

Immediately after the war, he became scientific adviser to the Ordnance Research and Development Division at Fort Bliss, Texas, where he remained for four years. During this period, he had opportunity to become personally acquainted with American electrochemists with whom he had corresponded previously, and to whom his work was well known. In 1949, he was asked to join the Department of Metallurgy at Massachusetts Institute of Technology where he is now Visiting Professor.

Dr. Wagner's researches, as summarized in 125 technical papers published here and abroad, served as penetrating inquiries into the subject of thermodynamics of alloys, mechanism of oxidation in metals and alloys, mobility of ions and electrons in semiconductors, and the mechanisms of catalytic and electrochemical reactions. He is coauthor of "Thermodynamik" published in 1929 with W. Schottky and H. Ulich, and of chapters on the subjects of thermodynamics of alloys and chemical reactions of metals published in 1940 in the "Handbuch der Metallphysik," edited by G. Masing. He is the chairman this year of the Gordon Research Conference on the Chemistry and Physics of Metals.

Dr. Wagner will receive the Palladium Medal at the Detroit meeting of the Society in October of this year. At this time, he will present the Medal Award Lecture covering some phases of his researches that have general interest to members of the Society.

Marden Prize Winner

Martha E. Moushon of East Peoria, Illinois, has been selected as the winner of the John W. Marden Prize for 1951. The award, consisting of one year's subscription to the publications of The Electrochemical Society, is given annually to the outstanding graduating student in chemical engineering at Illinois Wesleyan University, Bloomington, Illinois.

Miss Moushon was born in East Peoria and received her early education in the schools of that city. She entered Illinois Wesleyan in 1947 and received the B. S. degree in June of this year. While at the University, Miss Moushon was a laboratory assistant for three years and upon graduation accepted a position as chemist with the Du Pont Corporation at its Seneca, Illinois, works.

Detroit Plays Host to One Hundredth Meeting

Plans are taking shape for the 100th Meeting of The Electrochemical Society, to be held in Detroit, October 9th to 12th, and members can be assured of an interesting and profitable gathering. Headquarters for the technical sessions and entertainment will be the Hotel Statler, which has an outstanding reputation for its facilities for such meetings.

It is just nine years ago that the Society last held such a conclave in the Motor City. Because Detroit is the home of the giant automotive industry, as well as huge plants producing a thousand other products, it is especially ideal for the forthcoming meeting. Further enhancing its appeal this year is the fact that Detroit is celebrating its 250th Anniversary. Because of this, there are many added entertainment activities that will be of interest to members who attend the October gathering.

THE HOTEL STATLER, DETROIT—HEADQUARTERS FOR THE 100TH MEETING

Hub of Convention Sessions

Usually the center of major conventions in Detroit, the Hotel Statler will be the hub of the October Meeting. Located across from Grand Circus Park at the head of beautiful Washington Boulevard, it is within a block of the large downtown department stores, theaters, and airline terminal. The Statler is 14 stories high and contains 1,000 rooms that will accommodate 1,500 guests. It is requested by the Detroit committee in charge that Society members who plan to attend this 100th Meeting make hotel reservations as early as possible. These should be sent directly to the Statler Hotel.

Technical Program

Technical sessions on Corrosion, Electrodeposition, and Electro-Organic Chemistry will be scheduled for Wednesday through Friday, October 10th to 12th. Chairmen of these symposia report that a large number of papers have already been received. Additional features of the technical program will be round tables on "Power Supply and Requirements for Electrochemical Industries," "Batteries," and "Screen Engineering."

Social & Entertainment Plans in Making

Regarding the social aspects of the October Convention and the various luncheon and dinner arrangements, the Detroit Committee advises that these plans are nearly completed and will be announced in the next issue of the JOURNAL.

Similarly, an interesting program covering visits to industrial plants is being arranged. Because of the defense program and its restrictions some of the plans are still in the making and have yet to be definitely confirmed. In view of the exceptional opportunities existing in Detroit and surrounding areas for members and guests to visit some of the nation's greatest industrial plants, every effort is being made to assure an interesting plant trip program. Ben Davis, Chairman of the Plant Visits Committee, will have more about this in the September issue.

All local committees are giving unsparingly of their time and effort toward making the Detroit autumn meeting a red-letter one. Next month much detailed information will be given in the JOURNAL. In the meantime, members are urged to avoid disappointment by making hotel reservations now.

MEETINGS OF OTHER ORGANIZATIONS

ILLUMINATING ENGINEERING SOCIETY, Shoreham Hotel, Washington, D. C., August 26–September 1.

AMERICAN SOCIETY OF MECHANICAL ENGINEERS, Fall meeting, Radisson Hotel, Minneapolis, Minn., September 25–28.

GASEOUS ELECTRONICS CONFERENCE, General Electric Research Laboratory, Schenectady, N. Y., October 4–6.

39TH NATIONAL SAFETY CONGRESS & EXPOSITION OF THE NATIONAL SAFETY COUNCIL, Chicago, Ill., October 8–12.

AMERICAN SOCIETY FOR METALS, Detroit, Mich., October 15–19.

Timekeeping Marvel Operates at Bell Labs

A new and extremely precise "master timekeeper" recently went into operation at the Bell Telephone Laboratories at Murray Hill, New Jersey. This huge electronic clock is expected to vary less than one ten-thousandth of a second per day, or one second in 30 years.

The secret of this split-second precision lies in four extremely stable quartz crystals, about the size of matchbooks, which vibrate in controlled temperature chambers at a frequency of 100,000 cycles per second. Working together with 600 electron tubes, these crystals operate with a precision of one part in a billion.

The new timekeeper is known technically as the Bell System Primary

Standard of Frequency and its signals will control the time throughout the Bell System. It will also govern radio and television stations, coaxial cables, and telephone networks.

Insuring continuous operation of the clock is a large storage battery power plant which provides reserve power in case of a major failure of other sources.

Symposium on Polarization

The Theoretical Division is planning to hold a two-day symposium on "Polarization" at the Fiftieth Anniversary Meeting of the Society (Philadelphia, May 4 to 8, 1952). A number of speakers will be invited; in addition, the Division is anxious to receive contributed papers. Also welcome will be papers to be scheduled for a one-day session on general theoretical electrochemistry.

Inquiries should be addressed to the Chairman of the Division: Walter J. Hamer, National Bureau of Standards, Washington 25, D. C.

Notes from India

The new buildings of the Department of Electrical Communication Engineering and the Department of Power Engineering and Electrical Technology, Indian Institute of Science, Bangalore, have been completed in pursuance of the postwar expansion program of the Institute. The building of the former department was opened by the Prime Minister of India in January 1951 and of the latter by the President of India in April 1951.

The Government of India Mint at Bombay has installed high frequency furnaces for the production of nickel alloys and is engaged with work on the electrolytic recovery of precious metals used in coinage.

The Delhi Cloth Mills, Limited, Delhi, have installed Hooker type alkali-chlorine cells with a capacity of 5 tons of caustic soda per day.

The Premier Automobiles and Hind Cycles of Bombay have installed modern equipment for electroplating special parts of automobiles and bicycles. The former firm has also installed the latest type machinery (equipped with automatic welding) for the manufacture of seamless tubes.

Kamani Engineering Works, Bombay, has set up modern type low-frequency induction as well as annealing furnaces for the production of brass suitable for plates.

Hindustan Aircraft, Limited, Bangalore, and the D.C.M. Chemical Works, Delhi, have become Patrons of the India Section of The Electrochemical Society.

H. S. Kulkarni, deputy chief engineer, Central Electricity Commission, Government of India, recently visited the United States and Canada to study the electrification of large-scale industries, particularly electrochemical and electrometallurgical, with a view to establishing similar industries in India.

The Central Electrochemical Research Institute, Council of Scientific and Industrial Research, India, at Karaikudi is steadily taking shape.The building construction is in progress and arrangements are being made to install the necessary equipment. It is expected to be ready for use by the middle of 1952.

At the World Power Conference held in New Delhi in January 1951, the following presented papers as indicated:

B. K. R. Prasad (Electric Grid Offices, Bombay), "Application of Electric Power for Electrochemical and Electrometallurgical Industries and Its Present Development in India."

V. Seshasayee (Fertilizers and Chemicals, Travancore), "The Development of Fertilizer Industries in India."

D. V. Krishna (Mysore Iron and Steel Works), "The Production of Pig Iron in the Electric Furnace and the Development of the Ferro-Silicon Industry."

Also, at the Symposium on "The Chlorine Industry" held by the National Chemical Laboratory of India, at Poona in March 1951, S. Ramaswamy (Mettur Chemical and Industrial Corp.) read a paper on "Basic Requirements for Development of Heavy Chemical Industries."

T. L. Rama Char

New Phosphorus Plant for Monsanto in Idaho

A multi-million dollar elemental phosphorus plant will be constructed at Soda Springs, Idaho, by Monsanto Chemical Company's Phosphate Division. The decision to build the plant, expected to be the most modern in chemical industry, followed a three-year investigation of mineral deposits, plant sites, and power and transportation facilities in the Rocky Mountain area. Construction is expected to start this summer and the new plant is scheduled to begin operation in the latter part of 1952.

SECTION NEWS

Midland Section

The annual "Ladies Night" meeting of the Midland Section was held at the Midland Country Club on June 6th. This was a dinner meeting starting at 6:30 p.m.

Following the dinner a short business meeting was held and the officers for the 1951–52 season were announced:

Chairman, H. A. Robinson
Vice-Chairman, H. H. Roth
Secretary-Treasurer, W. R. Perry

The chairman, Mr. F. W. Koerker, then summarized the Section's activities for the past season, which had been a successful one. Much of the credit for this success goes to the fine speakers who came to Midland to address the Section meetings. These were: Dr. A. E. Remick of Wayne University, Dr. A. B. Garrett of Ohio State University, Mr. W. J. Barth of the Du Pont Company, Dr. C. L. Faust of Battelle Memorial Institute, and Dr. M. G. Fontana of Ohio State University.

Mr. H. A. Robinson, vice-chairman, outlined a tentative program for the coming season after which Dr. R. M. Hunter, Electrochemical Society President, spoke briefly.

Following the business meeting, Dr. W. R. Mullison of The Dow Chemical Company's Agricultural Chemicals Laboratories gave an interesting talk on "Flower Gardening." Colored slides of flowers through the spring, summer, and fall seasons were shown. Following the talk, a question and answer period was enjoyed by everyone.

H. H. Roth, *Secretary-Treasurer*
(1950–51)

Pittsburgh Section

The all-day annual meeting of the Pittsburgh Section was held on June 9th at the Alcoma Country Club, Pittsburgh. There were four guest speakers with a variety of topics covering a wide range of interests.

The first speaker was Mr. Malcolm Priest of the U. S. Steel Corporation, who discussed "Designing against Corrosion in Steel." His talk mainly covered railroad corrosion problems but had a bearing on many other fields where corrosion plays a part. The discussion was well illustrated with practical examples of failures due to corrosion and of its mitigation by proper modifications in design. The speaker's wide experience in this field qualified him to

present an informative account of the subject.

The second speaker was Dr. Campbell Moses of the Department of Medical Research, University of Pittsburgh. The subject of his talk was "Application of Radioactive Isotopes in Medical Research." In view of the increased interest that the Society is showing in the field of natural sciences the inclusion of this talk was considered timely and it was very well received by all attending the meeting. Dr. Moses' account of the present status of medical therapy using radioactive isotopes was fascinating and authoritative. In his presentation, he stressed the fact that although radioisotopes have been very useful as an adjunct to other medical tools, there have not yet been too many outstanding applications of tracers in medical therapy. Much work remains to be done before their full potentialities are realized.

The third speaker, Dr. A. Langer of the Westinghouse Electric Corporation, spoke on "Polarography of Chromates and Molybdates." Dr. Langer gave an interesting account of his work on this subject, which was thought provocative in view of the unusual results that he obtained.

The final speaker was Dr. Ling Yang of Princeton University (now at the Metals Research Laboratory, Carnegie Institute of Technology). Dr. Yang gave a comprehensive account of his work on "Orientation Relationships in the Electrodeposition of Metals." The talk was stimulating and it is clear that his work has contributed greatly to the subject.

M. T. SIMNAD, *Secretary-Treasurer*

PERSONALS

JAMIL P. THABIT has left the University of Michigan, Ann Arbor, Mich., and is now at University College London, Chemistry Department, London, England.

JOHN B. PERKINS of Niles, Mich., has accepted a teaching fellowship at the University of Notre Dame, College of Chemical Engineering, Notre Dame, Ind. Mr. Perkins will also take courses toward a doctorate in physical chemistry.

S. RAMASWAMY, Mettur Chemical and Industrial Corp., Mettur Dam, India, has been appointed a member of the following committees: Salt Research Committee of the Council of Scientific and Industrial Research, India, and Salt Advisory Committee of the Ministry of Works, Production and Supply, Government of India.

T. L. RAMA CHAR, Indian Institute of Science, Bangalore, India, has been elected Honorary Secretary of the Bangalore Section of the Royal Institute of Chemistry, London.

C. W. CLARK has been transferred from the plant offices of Canadian Copper Refiners Ltd. in Montreal (a subsidiary of Noranda Mines Ltd.) to the head office of Noranda Mines and Canadian Copper Refiners at Toronto, Ont. Mr. Clark is Director of Research and Development for both companies and has been actively associated with Noranda's work on the recently developed sulphur-iron process.

EMANUEL H. BRONSTEIN has been appointed Consulting Corrosion Engineer for Research and Sales Coordination, Michigan Pipe Company, Bay City, Mich. Besides coordinating sales, Mr. Bronstein will be available for consultation in corrosion problems and will coordinate the company's long range program on product improvement and new product development. He was previously with the Ric-Will Company, Barberton, Ohio.

R. E. MCNULTY has been named Manager of the Madison Division of The Dow Chemical Company at Madison, Ill. Mr. McNulty was previously at the company's Midland plant.

T. R. ANANTHARAMAN has been awarded the degree of Master of Science by the University of Madras, India.

Storey Receives Citation at Wisconsin

Oliver W. Storey has been awarded a Distinguished Service Citation by the University of Wisconsin College of Engineering, one of five men to receive this honor. Presentation was made at the 1951 Engineers' Day Dinner on May 4th. Mr. Storey is Consultant for Burgess Battery Company and Director and Secretary of Burgess Cellulose Company, Chicago, Illinois. He has long taken an active part in Electrochemical Society affairs, serving as Vice-President in 1929–31 and 1937–39, and for many years as Chairman of the Publication Committee.

Erwin Honored on Retirement

Raymond W. Erwin, National Carbon Company, Cleveland, was honored on June 8th at a farewell party given by his associates on the occasion of his retirement, after more than forty years of service with the company. Previous to his work at the Cleveland Laboratories, Mr. Erwin had been Superintendent at the Toronto and San Francisco plants and for nine years was General Manager of the company operations in Australia and New Zealand. Mr. Erwin is well known as the inventor of the Eveready High Voltage Track cell, widely used in railroad signaling operations.

NEW MEMBERS

In June 1951 the following were elected to membership in The Electrochemical Society:

Active Members

ANTON DE SALES BRASUNAS, Department of Metallurgy, Massachusetts Institute of Technology, Cambridge 39, Mass. (Corrosion)

ROBERT S. BRISKE, c/o Crompton Parkinson Ltd., Guiseley, Nr. Leeds, England (Electronics)

ALDEN B. DAVIS, Sylvania Electric Products Inc., Towanda, Pa. (Electronics)

DODD S. CARR, International Nickel Company, Inc., Research Laboratory, Bayonne, N. J. (Electrodeposition)

LEON L. DEER, Naval Ordnance Plant, mailing add: R.F.D. 11, Box 265, Indianapolis 44, Ind. (Electric Insulation)

DONALD V. DOUB, c/o Pacific Gas and Electric Company, 245 Market St., San Francisco 6, Calif. (Electronics)

CHARLES R. FISHER, National Carbon Company, mailing add: 1501 W. State St., Fremont, Ohio (Battery)

GEORGE T. JOBE, National Carbon Company, P.O. Box 6087, Cleveland 1, Ohio (Battery)

ERNESTO LUSTIG, c/o E. Lix Klett y Cia., Martin Rodriguez 444, Buenos Aires, Argentina (Electronics)

ROBERT K. MCKECHNIE, Carboloy Company, Building 10, 1 River Rd., Schenectady 5, N. Y. (Rare Metals)

PAUL E. MACHEMER, Villanova College, mailing add: Gulph Mills, Bridgeport R.D., Pa. (Theoretical Electrochemistry)

ERIC L. MAGER, Sylvania Electric Products Inc., 60 Boston St., Salem, Mass. (Electronics)

ELMER C. PAYNE, Sylvania Electric Products Inc., mailing add: 70 Phillips St., Boston, Mass. (Electronics)

J. ARTHUR ROY, Sylvania Electric Products Inc., mailing add: 3 Shetland Rd., Danvers, Mass. (Electronics)

ARTHUR J. SHERBURNE, General Electric Company, mailing add: 309 Riverside Ave., Scotia, N. Y. (Electric Insulation)

BERNARD WOLK, Sylvania Electric Products Inc., mailing add: 260–41 Langston Ave., Glen Oaks, L. I., N. Y. (Electronics)

Reinstatements

H. L. SAUMS, Anaconda Wire & Cable Company, Muskegon 82, Mich. (Electric Insulation and Electronics)

FRANCIS E. VINAL, Massachusetts Institute of Technology, Cambridge 39, Mass. (Electric Insulation)

Student Associate Member

EDWIN D. FINLEY, General Electric Company, mailing add: 405 Hulett St., Schenectady, N. Y. (Electronics)

BOOK REVIEWS

THE PHYSICS OF POWDER METALLURGY, a symposium sponsored by Sylvania Electric Products Inc., edited by Walter E. Kingston. Published by McGraw-Hill Book Company, Inc., New York, 1951. xii plus 404 pages, $8.50.

This book contains the proceedings of a symposium on powder metallurgy held at Bayside, Long Island, in August of 1949. Its purpose appears to be twofold: on the one hand, to familiarize powder metallurgists with recent pertinent advances in the fields of physical metallurgy and physics of metals; on the other hand, to bring to the attention of these scientists the art of powder metallurgy both as a field for investigation and as a research technique.

The title of the book is somewhat misleading, since the core of the symposium was an excellent group of papers on physical metallurgy. Many of these, unfortunately, have only a tenuous application to powder metallurgy problems. Within the field of powder metallurgy, sintering is very well treated in four chapters. Preparation and properties of powders and the pressing process are covered, but it is evident that much more work must be done on these subjects before they are as well understood as the sintering process.

This book will find its greatest value as a guide for research methods in powder metallurgy. Empirical research has brought the field to its present state of development. The scientific method will undoubtedly advance it further. HARRY UDIN

INTERNATIONAL BIBLIOGRAPHY ON ATOMIC ENERGY, Volume II, Scientific Aspects, by Atomic Energy Commission Group, Department of Security Council Affairs, United Nations. Distributed by Columbia University Press, New York, 1950. $10.00.

Volume I of this series dealt with the political, economic, and social aspects of atomic energy. Volume II covers the scientific aspects with the aim of contributing toward "extending between all nations the exchange of basic scientific information for peaceful ends." The bibliography contains more than 24,000 references to the original literature, prefaced by a detailed table of contents and supplemented by an author index. The bibliography is comprehensive and is organized under five main divisions which are as follows: I. Fundamental Nuclear Science, II. The Physics and Engineering of Nuclear Reactors, III. The Biological and Medical Effects of High Energy Radiation, IV. Isotopes in Biology and Medicine, and V. Applications of Radioactive Tracers in Nonbiological Sciences and Technology. Division V is concerned with the literature on applications of isotopes to physical and analytical chemistry and to some phases of engineering. The volume should prove of great value to scientific workers in chemistry and related fields.

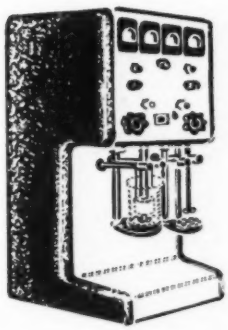
L. A. WOOTEN

NOTES FROM INDUSTRY

Publications

CORROSION NOTEBOOK, a 16-page bulletin published by The Carpenter Steel Company, Alloy Tube Division, Union, N. J., contains data on the corrosion resistance of various types of stainless tubing and pipe. The notebook describes general types of corrosion: intergranular, galvanic, atmospheric, and pitt-type, and also gives types of corrodent at various concentrations. Copies will be sent on request.

THE CARE AND HANDLING OF GLASS VOLUMETRIC APPARATUS has been released by Kimble Glass, Box 1035, Toledo, Ohio. This manual discusses the proper handling, care, and calibration of volumetric glassware. It was months in preparation and contains accurate basic information for scientific and chemical laboratories. Described are



electro-analysis apparatus

Sturdy, versatile, attractive—this unit is rugged for continuous duty yet versatile for research. Built-in rectifier delivers 8 volts, 5 amperes DC to both spindles simultaneously or 10 amperes DC for a single determination. Ammeter, voltmeter, polarity reversing switch and power control knob are provided for each position. Case is stainless steel and cast aluminum. Operates from 115 or 230 volt, 60 cycle AC. Unit measures 14½″ by 16½″ by 29½″ high. Ask for illustrated bulletin 130.

Eberbach CORPORATION SCIENTIFIC INSTRUMENTS & APPARATUS ANN ARBOR, MICH.

such things as: systems of weights and measures, cleaning apparatus, reading the meniscus, drainage time of burets, etc. Copies sent on request.

PENNSYLVANIA SALT MANUFACTURING COMPANY has issued a new bulletin on "Hydrogen Peroxide" prepared for those who need a compact, ready reference. The book is written in nontechnical language, to meet the needs of plant foremen, workers, and executives, and contains suggestions for the application of the product to acquaint readers with possible ways in which it may be used to greater advantage. Recommendations are also made on the use, handling, shipping, and storing of hydrogen peroxide. Available on request from Pennsalt Chemicals, Industrial Chemicals Department, 1000 Widener Building, Philadelphia, Pa.

Products

POCKET *p*H METER AND PROBE UNIT. A revolutionary *pocket-size* *p*H meter and companion probe unit, now available from Analytical Measurements, Chatham, N. J., permits for the first

time instant, on-the-spot *p*H determinations anywhere. Completely self-contained with batteries, in a Bakelite casing 3 x 5¼ x 2½ in., this instrument is furnished, camera fashion, in an ever-ready case with novel plastic tubes of buffer and KCl solutions. Total weight is 3 lb.

Supports and beakers are completely eliminated by combining the calomel and glass electrodes with the sample holder, in a single polyethylene probe unit. This new treatment protects them and requires a sample volume of only 0.5 ml. The meter is scaled from 2 to 12 *p*H for easy reading, and an adjustment gives readings from 0 to 14. Accuracy of 0.1 *p*H is obtainable. Hearing-aid type batteries provide up to 1300 hours of operation.

ELECTRONIC TEMPERATURE CONTROLLER. A rugged highly sensitive electronic temperature controller

(patented) is offered by Phen-Trols, Incorporated, Rutherford, N. J., at low cost, for use where close control of critical temperatures over long periods is desired.

The Phen-Trols controller is a direct dial setting type and maintains temperatures within 0.50°C. Designed to operate from standard outlet of 115-volt 60-cycle current fused to carry necessary load, it will handle loads up to 3000 watt capacity. Unit is positive, free from drift, and double fused for full protection. A similar model is also available for controlling temperature below 0°C.

Personalities

GEORGE J. GOEPFERT has been appointed Research Director for Speer Carbon Company and its subsidiary, International Graphite & Electrode Corporation, St. Marys, Pa.

H. V. CHURCHILL, Chief of the Analytical Division of Aluminum Company of America's Research Laboratories in New Kensington, retired from active service with the company on July 1st. He was succeeded by his son, J. R. CHURCHILL, who has been his assistant since December 1944.

Chemical Translations
by mail
Werner Jacobson, B.S., M.S.
Translator and Chemist
Microfilms Accepted
German, Swedish, Danish-Norwegian, French, Spanish, Portuguese, Italian, Russian, Polish, Chinese.
334 South Mozart Street Chicago 12

TITANIUM RESEARCH & DEVELOPMENT

National Research Corporation and Monsanto Chemical Company have united their research efforts on titanium and are planning a much expanded program. Additional technical manpower for all phases of the work will be required in the future. Specifically required immediately are one senior and two junior chemical engineers.

Write:
National Research Corporation
70 Memorial Drive
Cambridge 42
Massachusetts

EMPLOYMENT SITUATIONS

Please address replies to box shown, c/o The Electrochemical Society, Inc., 235 West 102nd Street, New York 25, N. Y.

Positions Wanted

ELECTROCHEMIST AND CHEMICAL ENGINEER, Ph.D., 37 years old, academic and industrial experience on design of electrolytic processes, abrasive research, and direction of graduate research. About 25 publications and patents. Will consider foreign as well as domestic employment. *Reply to Box 343.*

PHYSICAL CHEMIST, Ph.D. 1948, desires position with small or medium sized company in the Middle West. Three years' fundamental research on high polymers and inorganic chemicals for large eastern concern. Desires development work and more responsibility. Academic work in electrochemistry. Inactivated Naval Reservist, 30, married, family, now employed. *Reply to Box 344.*

Position Available

STORAGE BATTERY ENGINEER, electrical or mechanical background, for Engineering Department to work on production projects involving design and tooling for production of speciality batteries. Location in Mid-Atlantic state. Give qualifications and expected salary. *Reply to Box A-223.*